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RESIN-SEALED SEMICONDUCTOR DEVICE

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[There are no amendments to this patent.]

Abstract

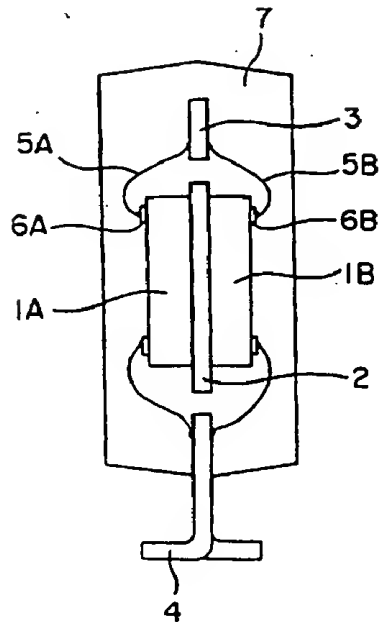
Objective

To provide a resin-sealed semiconductor device in which several IC chips respectively have an equivalent heat dissipation.

Constitution

This resin-sealed semiconductor device has IC chips 1A and 1B respectively at both sides of a die pad 2 of a lead frame and several inner leads 3 and outer leads 4 electrically connected to each IC chip 1A and 1B, as well as several IC chips 1A and 1B

being sealed with a resin so that they are parallel with the outer leads.



Claims

1. A resin-sealed semiconductor device characterized by the fact that in a resin-sealed semiconductor device having IC chips at both sides of a die pad of a lead frame and several inner leads and outer leads electrically connected to each IC chip, several IC chips are sealed with a resin so that they are parallel with the outer leads.

2. The resin-sealed semiconductor device of Claim 1, characterized by the fact that several protruded electrodes are

installed on the surface each of the above-mentioned IC chips and that each of the above-mentioned IC chip is joined with the above-mentioned inner lead via these protruded electrodes.

3. The resin-sealed semiconductor device of Claim 1, characterized by the fact that protruded electrodes are respectively installed on the above-mentioned several inner leads, and that each of the above-mentioned IC chips is joined with the above-mentioned inner lead via these protruded electrodes.

4. The resin-sealed semiconductor device of Claim 3, characterized by the fact that protruded electrodes are installed on both surfaces of the above-mentioned several inner leads, and that each of the above-mentioned IC chips is joined with the above-mentioned inner lead via these protruded electrodes.

5. The resin-sealed semiconductor device of Claim 1, characterized by the fact that each of the above-mentioned IC chips is electrically joined with wiring patterns of both surfaces of a wiring substrate composed of silicon or a ceramic on which wiring patterns are formed and that the above-mentioned outer leads are joined with the wiring substrate.

6. The resin-sealed semiconductor device of Claim 2 or 3, characterized by the fact that protruded parts with the same heights as those of the above-mentioned protruded electrodes are installed at a certain distance from the above-mentioned protruded each of electrodes on each of the above-mentioned IC chips or each of the above-mentioned inner lead.

7. The resin-sealed semiconductor device of Claim 1, characterized by the fact that an extended part for supporting the above-mentioned die pad at the time of die-bonding is

horizontally installed at the peripheral edge of the above-mentioned die pad.

8. The resin-sealed semiconductor device of Claim 1, characterized by the fact that it is equipped with IC chips being independently die-bonded at the die pad of each lead frame and inner leads electrically joined with each IC chip; and that it is sealed with a mold resin in an integrated state by attaching the above-mentioned lead frames.

9. The resin-sealed semiconductor device of Claim 1, characterized by the fact that IC chips are installed on a carrier tape in which inner lead parts and outer lead parts are attached as wiring patterns; and that the carrier tape is joined with the lead frames and sealed with a mold resin.

10. The resin-sealed semiconductor device of Claim 1, characterized by the fact that the continuous leads of the above-mentioned lead frames are joined with several electrodes of the same or different IC chips.

11. The resin-sealed semiconductor device of Claim 1, characterized by the fact that it is equipped with IC chips that are independently die-bonded with a die pad of each lead frame, inner leads electrically joined with each IC chip, and unit products in which these are sealed with a mold resin so that the uninstalled surface of the above-mentioned die pad is exposed; and that these unit products are attached and integrated with the above-mentioned uninstalled surface.

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